Merco Savory

Enodis

PARTS & SERVICE Manual for PANORAMA ROTISSERIE
Model SP-7

THIS MANUAL SHOULD BE RETAINED FOR FUTURE USE

0101-JDM

WARRANTY

The SP-7 carries a 1 year warranty on parts and labor from date of unit purchase. Damage resulting from accident, alterations, misuse, abuse or failure to follow Use and Care Instructions or improper installation, voids the warranty.

ELECTRICAL REQUIREMENTS

STOP!

Do not attempt installation until you have read the following information!

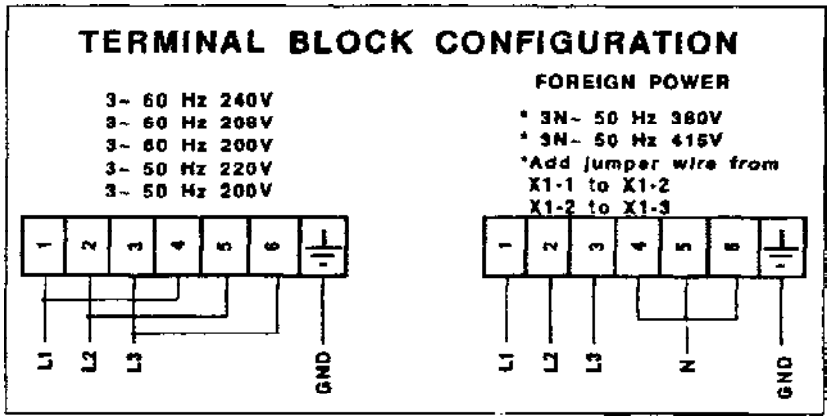
CAUTION!

This equipment is constructed of the very finest materials obtainable. In order to obtain maximum efficiency and reliability from this equipment, please follow guidelines below concerning electrical hook-up and site preparation. In addition to its glass and metal components, this unit contains various microprocessors and electrical components that are sensitive to harsh environments and electrical static, spikes, voltage sags, etc., similar to any computerized device. Outlined below are areas to be considered when performing installation.

1. **DEDICATED LINE -** No other equipment may be connected to this line.

2. **CORRECT VOLTAGE** - The voltage is specified on the data plate. This is not a dual voltage unit. Check voltage with a meter to ascertain actual voltage (i.e. 208V or 240V).

3. **SUPPLY CONNECTION WIRE GAUGE:**
   3 Phase – No. 10 AWG
   Wire to be suitable for at least 60 deg. C.

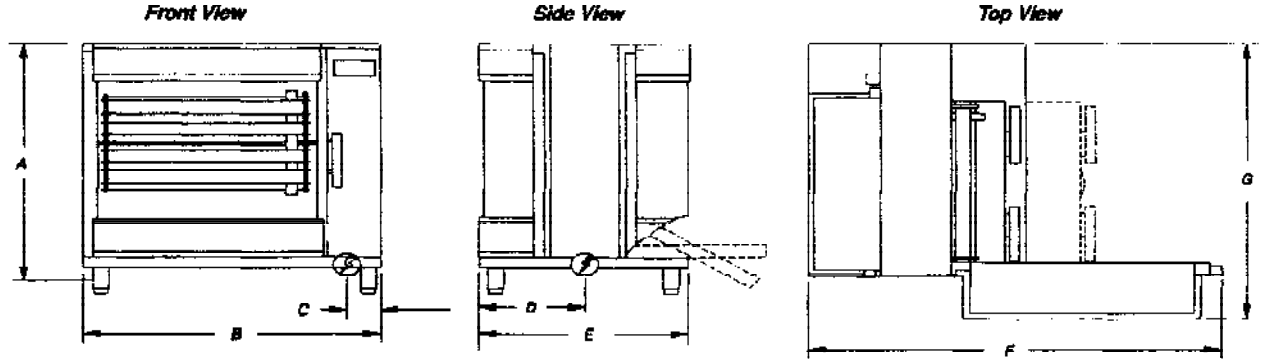

TERMINAL BLOCK CONFIGURATION
3~ 60 Hz 240V
3~ 60 Hz 208V
3~ 60 Hz 200V
3~ 50 Hz 220V
3~ 50 Hz 200V
FOREIGN POWER
* 3N~ 50 Hz 380V
* 3N~ 50 Hz 415V
*Add jumper wire from
X1-1 to X1-2
X1-2 to X1-3
1 2 3 4 5 6
L1 L2 L3 GND
1 2 3 4 5 6
L1 L2 L3 N GND

4. Never block air intake on the bottom or exhaust from left side louvers.

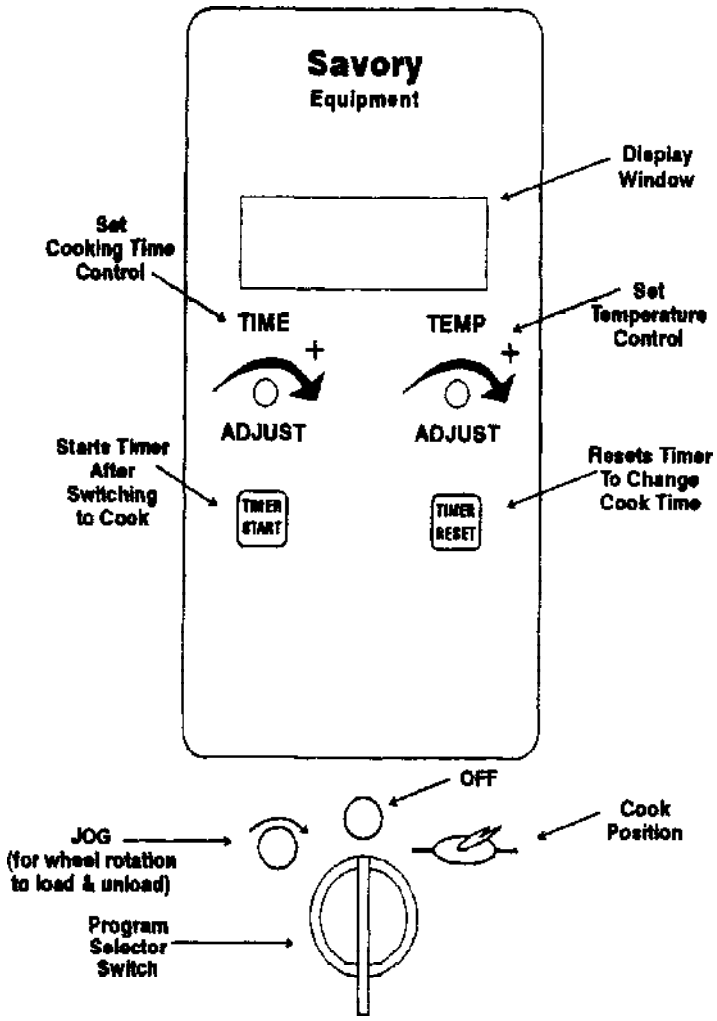
5. Legs must be secured and used to level the equipment.

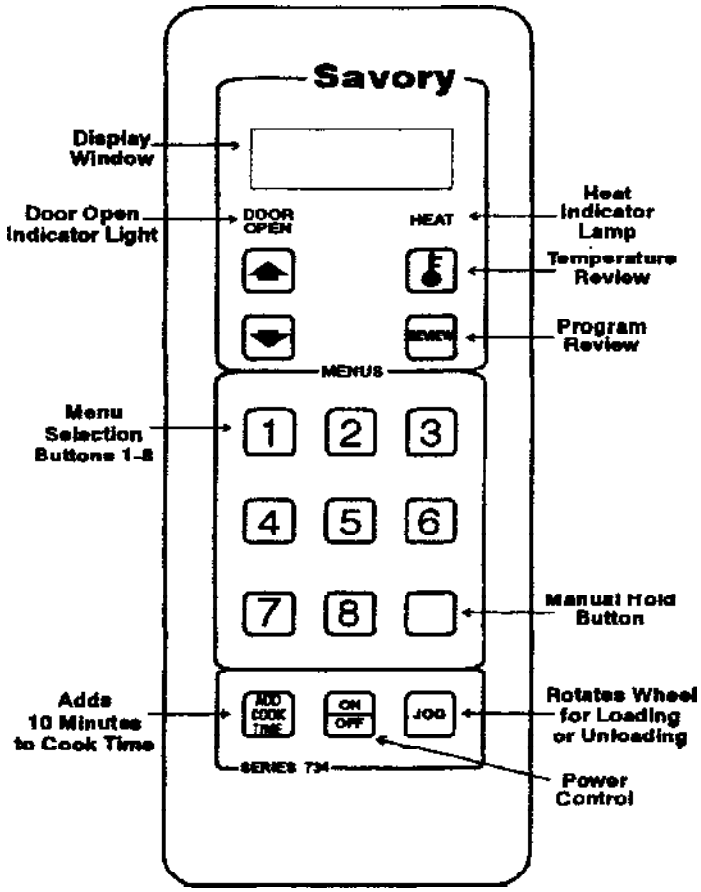
6. No obstructions under, on top or around the unit to restrict air flow or cause unsafe conditions. A 6" clearance is required from top and sides.

MECHANICAL DIMENSIONS



SP-7	A	B	C	D	E	F	G
(inches / cm)	44.25 / 112.4	39.25 / 99.7	2 / 5.1	14.5 / 36.8	29 / 73.6	56.5 / 143.5	45.50 / 115.6





STANDARD OPERATION CONTROL PANEL

1. Set switch to “Off Mode”.
2. Load rotisserie with product. Set **SELECTOR** switch to “Jog Mode”, to jog wheel during loading.
3. Set required cooking temperature by turning the **TEMP ADJUST** knob to the right to raise temperature or left to lower it. (The temperature setting will appear on the right side of the display window and will flash on and off until the oven reaches the set point). To display actual oven temperature, hold in **TIMER START** button for 3 seconds. NOTE: Temperature should not be set above 425 Deg..
4. Set required cooking time by turning the **TIME ADJUST** knob to the right to increase time or to the left to lower it. Allow approximately 10-15 minutes preheat time. (The time setting will appear as minutes and hours on the display)
5. Start cooking by turning selector switch to “Cook Mode” and press **TIMER START.** (The two dots between hours and minutes will flash on and off when timer is running). When cooking time is completed, rotisserie will automatically switch to hold mode and will hold product at 175 Deg.. Display window will show how long it has been holding.

PRE-PROGRAMMABLE CONTROL PANEL

1. Touch **ON/OFF** button.
2. Load rotisserie with product. Touch **JOG** button to rotate wheel.
3. Touch appropriate **MENU ITEM** (Refer to Menu chart).
4. Rotisserie will start cooking at indicated time and temperature for menu item. When cooking is completed, alarm will sound for 15 seconds. To stop alarm, touch **MENU ITEM** button. It will now automatically switch to the HOLD mode.
5. To review program for any menu item, touch **REVIEW** button.
6. If additional cooking time is needed, use **ADD COOK TIME** button, which adds 10 minutes at a time.
7. For additional hold time, touch **MANUAL HOLD** button. It is recommended that internal temperature and product condition be checked before more hold time is added.
8. To display actual oven temperature, hold in **TEMPERATURE REVIEW** button for 3-5 seconds.

PLEASE CALL SAVORY EQUIPMENT IF A MENU ITEM PROGRAM CHANGE IS NEEDED.

CLEANING INSTRUCTIONS

DAILY GENERAL CLEANING

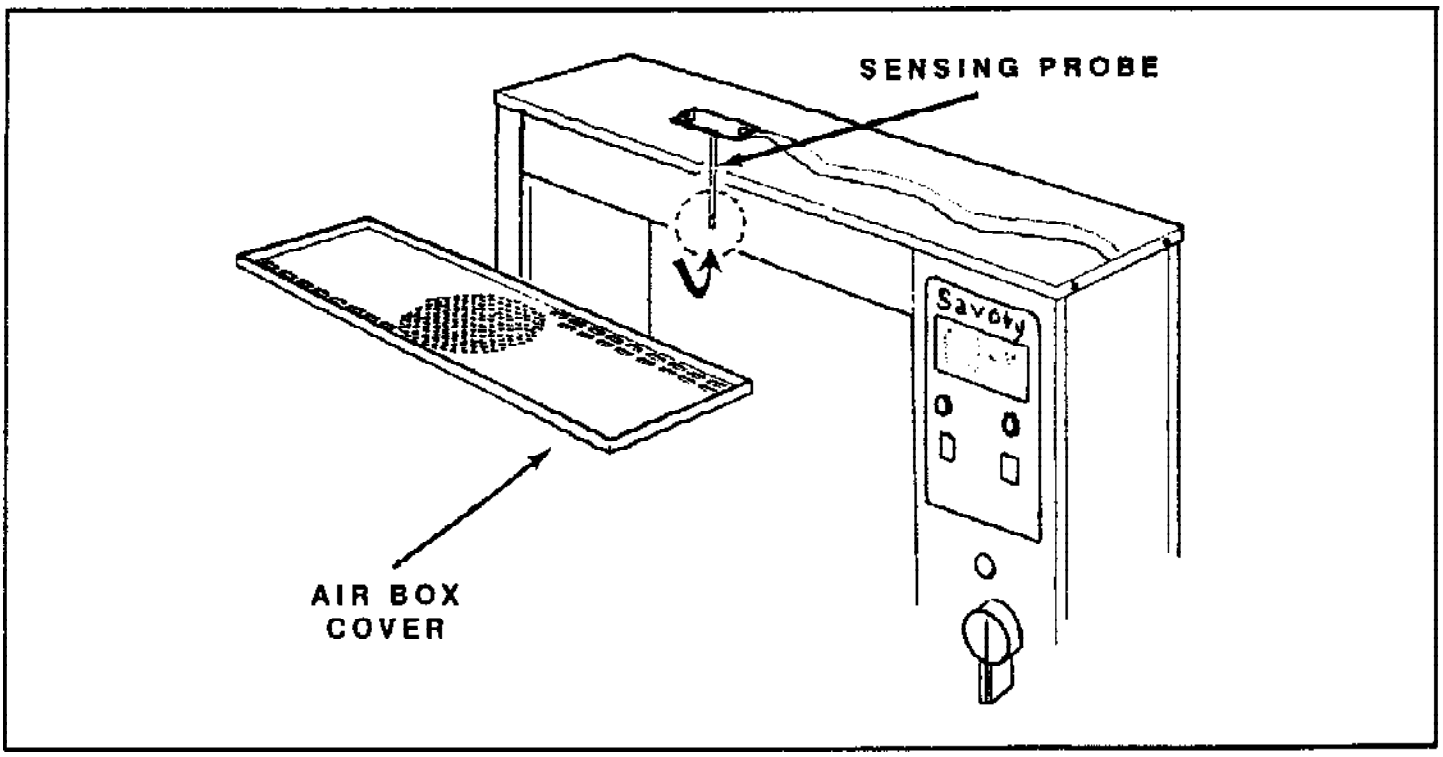
To keep the Panorama displaying product at its best, it should be kept clean. The grease tray should be emptied and the interior and exterior of the glass cleaned after every cooking cycle. The interior panels should be wiped with a cloth. Use a mild, grease-cutting detergent and glass cleaner.

At the final shut-down, the drip trays, grease trays, spits and/or baskets chould be removed and thoroughly washed with a suitable detergent. The exterior metal surface should be wiped with a dampened cloth and the glass cleaned.

The wheel assembly can be lifted from the interior to be washed in a sink with warm, soapy water.

Be certain to clean around areas where the door gasket makes contact with the metal panels of the machine to remove any grease residue.

WEEKLY AIR BOX CLEANING



The Air Box Cover should be removed weekly for cleaning.

CAUTION: THE UNIT MUST BE COOL BEFORE ATTEMPTING CLEANING PROCEDURES

1. Open the door and slide the Air Box Cover toward you for removal and cleaning.

2. Clean the grease from the Air Box Cover using a suitable detergent.

3. Wipe down the temperature sensing probe which is depicted in the diagram shown above. This must be kept grease-free for proper temperature sensing.

IMPORTANT – AIR BOX COVER MUST BE COMPLETELY DRY BEFORE RE-INSTALLING

POWER UNIT

Disassembly Instructions:
1. Disconnect main voltage.
2. Disconnect all wires to the printed circuit card.
3. Remove hardware holding power unit in place, being careful not to drop spacers and pull unit backwards.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

Required Parts	Quantity	Position
Power Unit	1	1

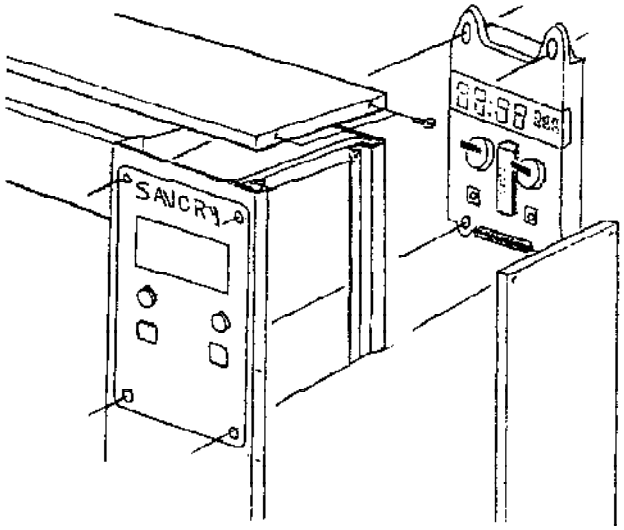


Figure 1

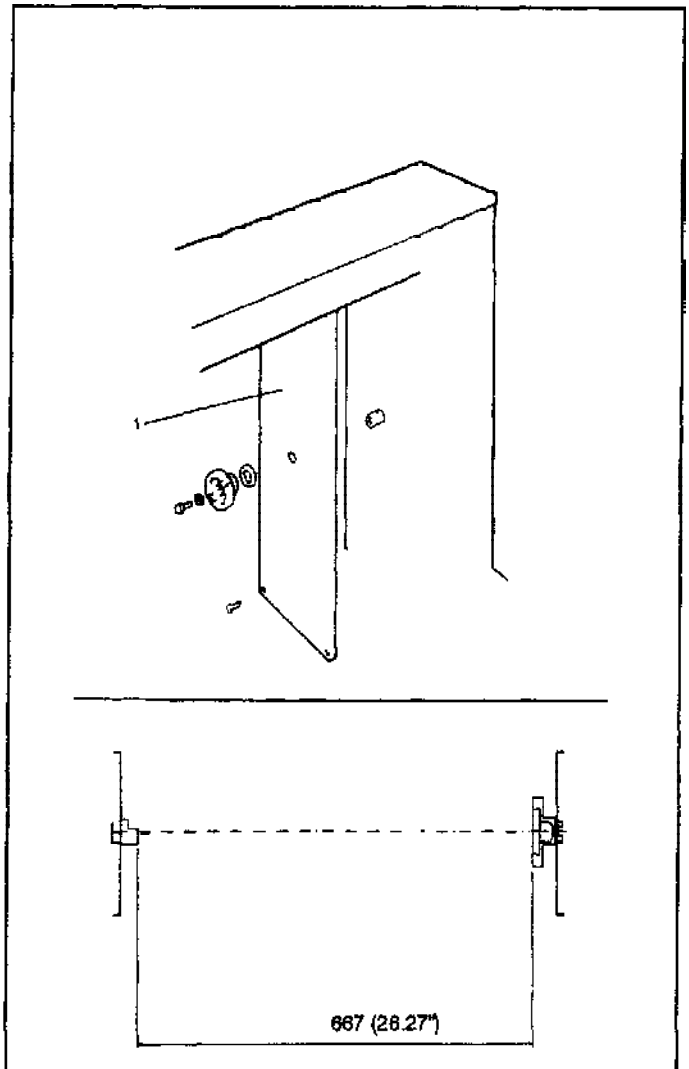


Figure 2

RIGHT INNER WALL

Disassembly instructions:
1. Disconnect main voltage.
2. Remove nut holding drive coupling and remove drive coupling.
3. Remove the right inner wall. (Refer to Overheat Protection Instruction).

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

NOTE: Check the measurements according to Figure 2.

Required Parts	Quantity	Position
Inner Wall	1	1

PT TEMPERATURE SENSOR
(#15856 – Standard Unit)
(#19428 – Pre-Programmable Unit)

Disassembly Instructions:
1. Disconnect main voltage.
2. Loosen the nut that holds the temperature sensor.
3. Pull the temperature sensor upwards.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

NOTE: It is very important when you assemble to make sure the thermocouple nose is inserted between the fan wheel and Air Box baffle plate. Make sure the temperature sensor wires do not come in contact with high voltage conductors in the grill.

Required Parts	Quantity	Position
PT Temperature Sensor	1	1

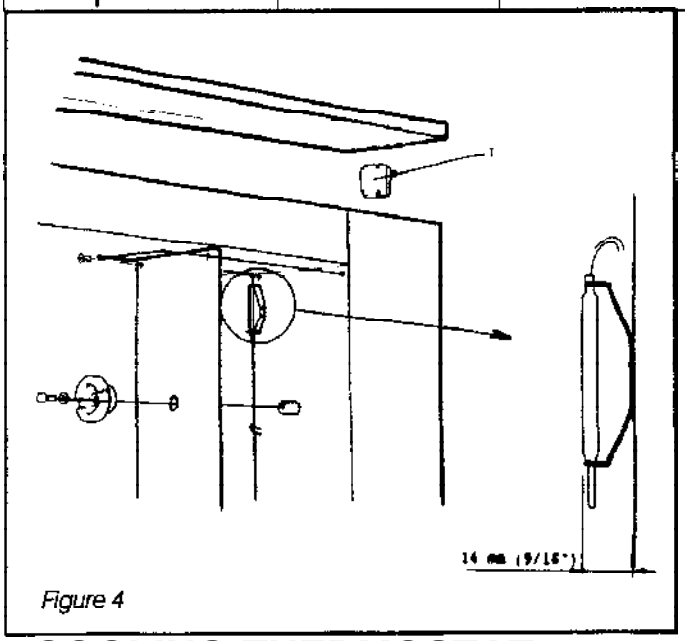


Figure 4

COOLING THERMOSTAT
(b1) (#15252)

Disassembly Instructions:
1. Disconnect main voltage.
2. Loosen the yokes that hold the bulb.
3. Remove the thermostat.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

NOTE: The cooling thermostat should make at 140 Deg.F +/- 50 Deg.F. This should be accomplished by turning the shaft's D-shaped end plane so its position is perpendicular to the long axis of the grill.

Required Parts	Quantity	Position
Cooling Thermostat	1	1

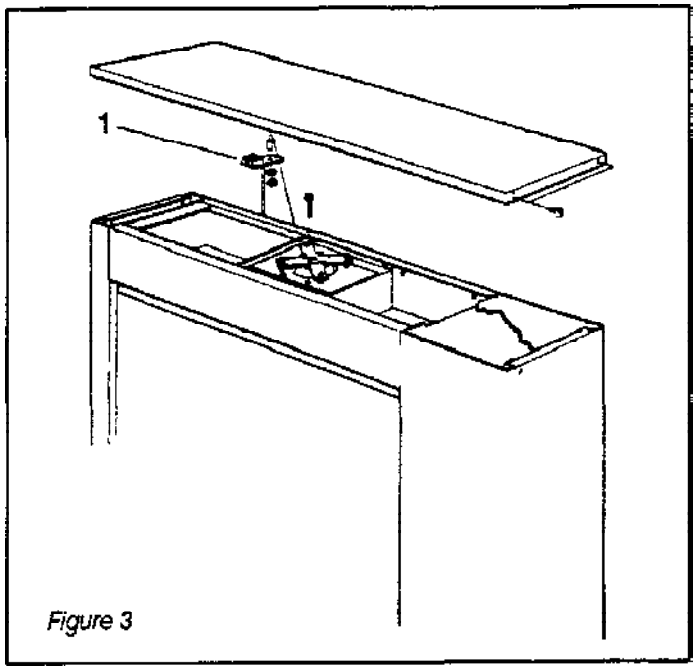


Figure 3

OVERHEAT PROTECTION (F1) (#19374)

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the Air Box.
3. Remove the hub. (Refer to the instructions for motor disassembly).
4. Remove the right inner wall.
5. Disconnect the thermostat bulb from its holder and pull it through the wall from the electrical compartment.
6. Replace the Overheat Protection.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-6 above.

NOTE: Make sure the distance between the bulb and the post exceeds 14 mm (9/16"), otherwise the Overheat Protection will not work.

Required Parts	Quantity	Position
Thermostat	1	1

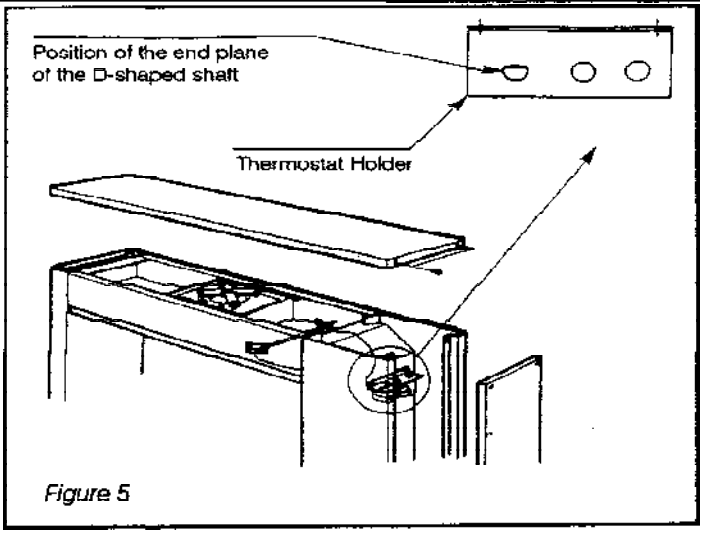


Figure 5

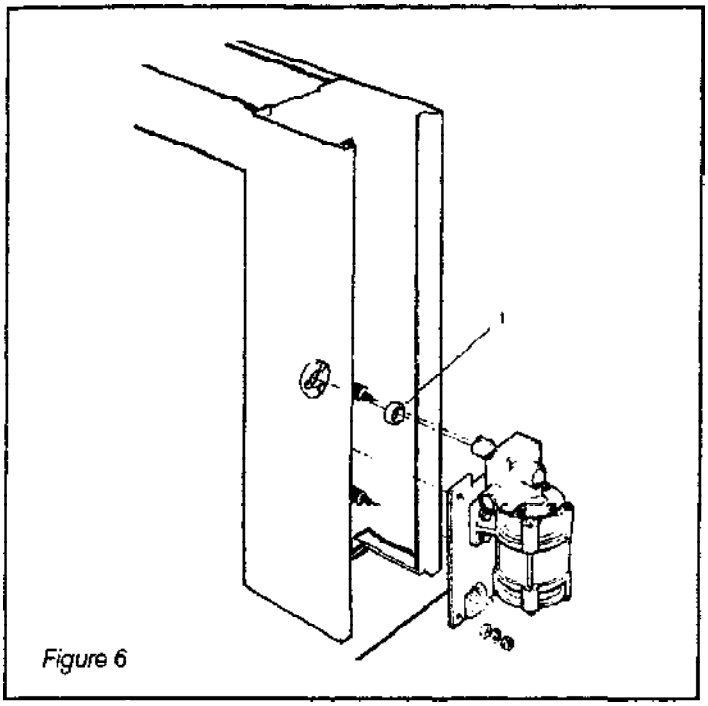


Figure 6

SLEEVE BEARING

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the grill motor.
3. Force the journal bearing out of the bearing mount by pressing.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

NOTE: The joint in the sleeve bearing should not be positioned in a vertical direction.

Required Parts	Quantity	Position
Sleeve Bearing	1	2

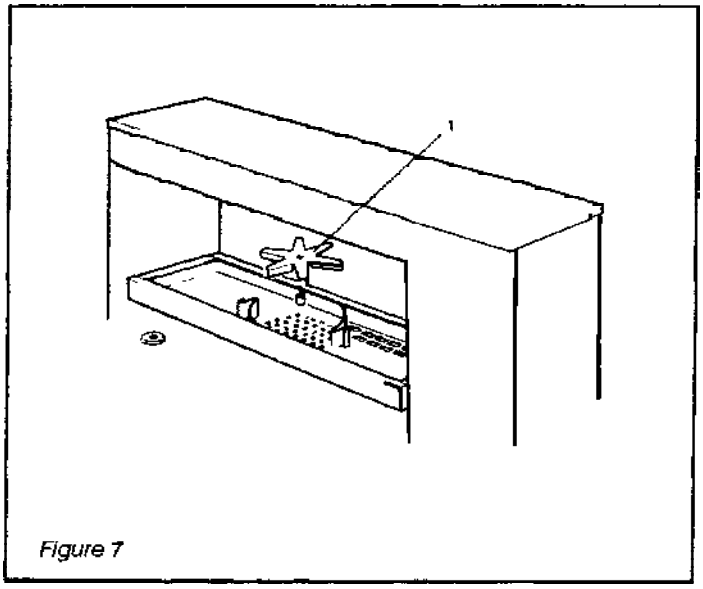


Figure 7

FAN WHEEL

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the Air Box.
3. Remove the nut holding the fan wheel. **Note the left hand threads.**

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

Required Parts	Quantity	Position
Fan Wheel	1	1

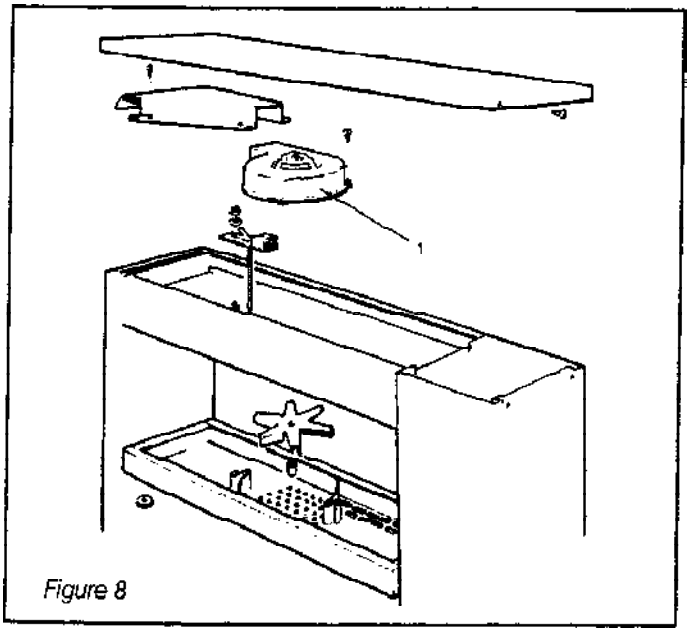


Figure 8

FAN MOTOR (#19377)

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the Fan Wheel.
3. Disconnect the electrical feed wires.
4. Change the Fan.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-4 above.

Required Parts	Quantity	Position
Fan Motor	1	1

ELEMENTS

Disassembly Instructions:
1. Disconnect main voltage.
2. Disconnect the electrical wiring.
3. Remove the Air Box.
4. Disconnect the element fixture.
5. Remove the element.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-5 above.

NOTE: The maximum permissible torque to be applied when tightening the electric wire connections is 10.6 in. lbs.. Use the double nut underneath.

Required Parts	Quantity	Position
Element	1	1

Part #	Voltage
19358	208
19449	240

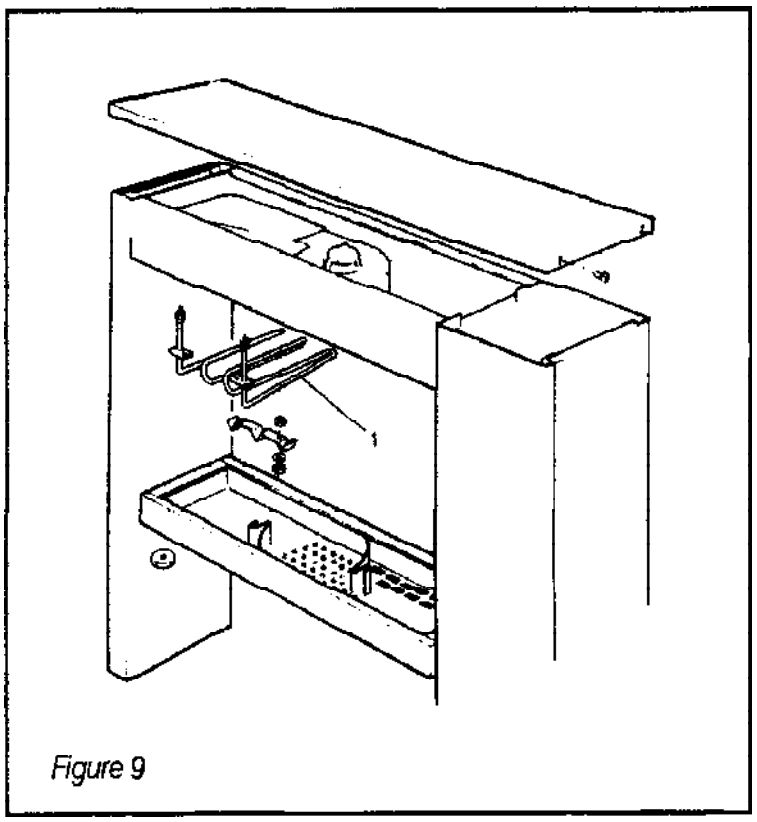


Figure 9

GRILL MOTOR (#19357)

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the nut from the center of the hub.
3. Maximum torque is 9.5 in.lbs.. Use the radial slots in the hub for holding.
4. Remove the connector wires on the motor plate and from contactor.
5. Remove nuts and washers holding motor plate to absorbers.
6. Pull the motor plate with the motor backwards. NOTE: Make sure the motor shaft follows along. If not, there is risk of losing the key between gear box shaft and the motor shaft. In case the motor shaft does not protrude through its bearing mount, polish the part of the shaft that protrudes through the bearing into the grill chamber.

In case polishing is not sufficient:
1. Remove Air Box.
2. Remove the right inner wall.
3. Remove the three screws holding the bearing mount.
4. The motor with its shaft and bearing mount can now be withdrawn through the electric compartment.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-6 above.

NOTE: Check the direction of rotation, which is supposed to be counter-clockwise seen from the grill chamber side. The bearing is self-lubricating and should not be lubricated. Check the measurements between the bearing shelf and the hub according to Figure 2.

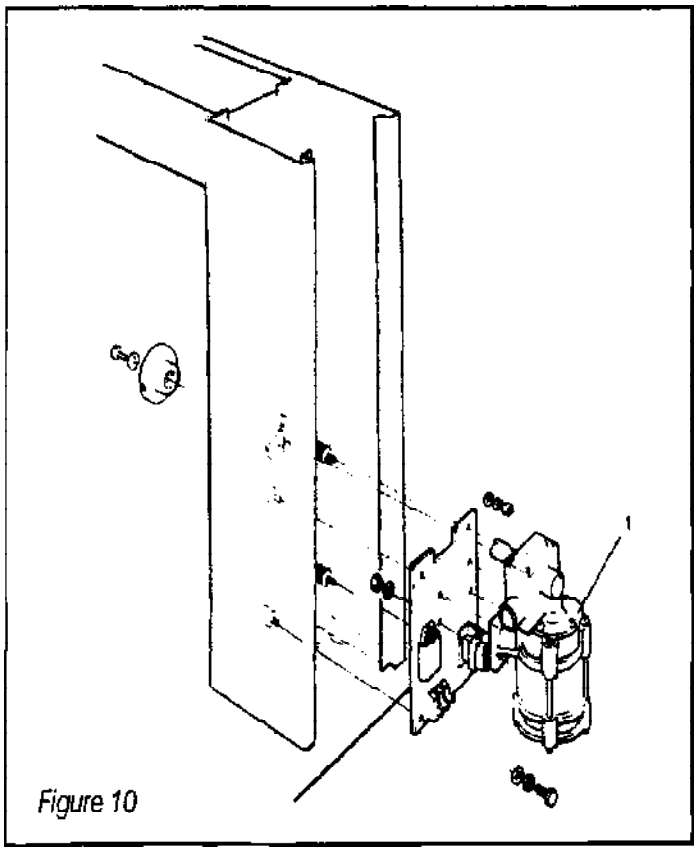


Figure 10

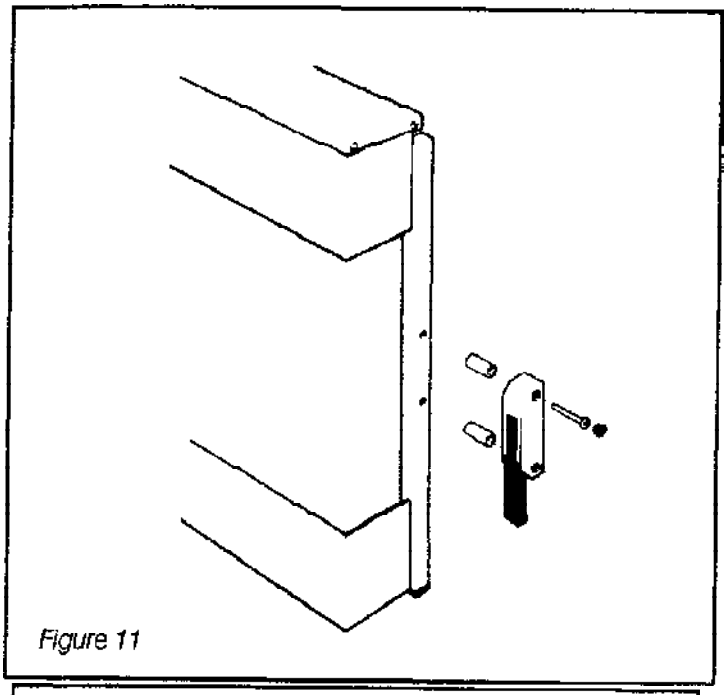


Figure 11

LOCK HANDLE

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the screws.
3. Remove the lock handle.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above. NOTE: Use lock liquid on the screws.

NOTE: The SP-7 has an optional lock with key.

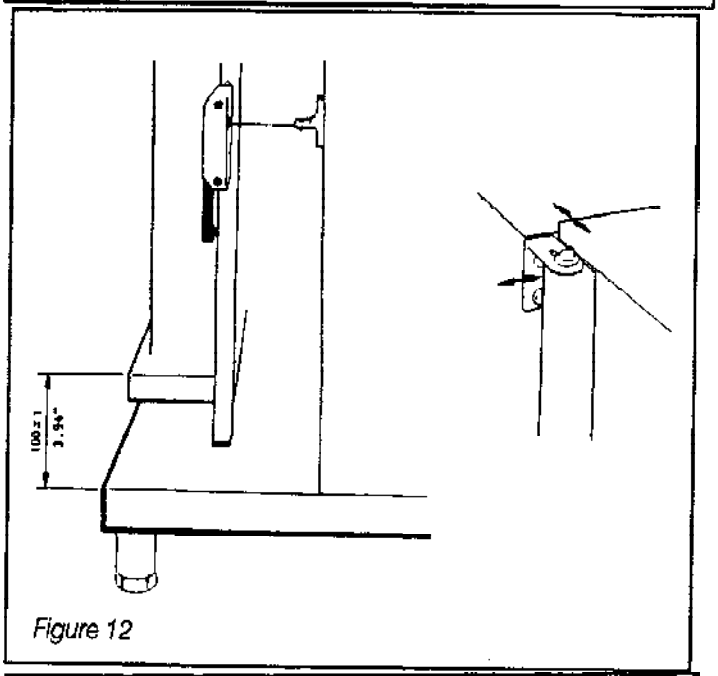


Figure 12

LOCK LATCH

Adjusting Instructions:
1. Disconnect main voltage. NOTE: Before adjusting the lock latch, the door should be adjusted to 100 +/- 1 mm (3.94”).
2. Loosen the screws in the latch so the latch can be adjusted.
3. Adjust the latch so that it lines up with the center of the hole in the handle and the vertical measurement will be in accord with what is shown in Figure 17.
4. Re-tighten the screws.
5. Adjust the lock wedge to make the gap between the roof and the door roof parallel.

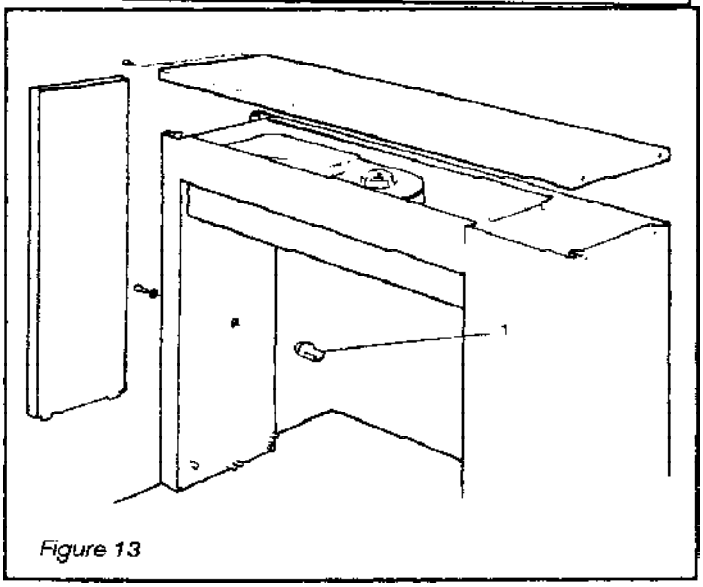


Figure 13

BEARING SHELF & LEFT INNER WALL

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the left outer wall.
3. Remove the bolt holding the bearing shelf.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-3 above.

NOTE: Make sure the bearing shelf is assembled with the milled surface horizontal. Note the control measurements according to Figure 2.

Required Parts	Quantity	Position
Bearing Shelf	1	1

IR-LAMPS (#15275)

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the door roof.
3. Remove the lids over the lamps.
4. Remove the nuts on the connector cable screws.

Assembly Instructions:
1. **DO NOT** touch the IR-Lamps with your fingers.
2. Trim the connector strips to size.
3. Assemble in reverse order according to steps 1-4 above. **NOTE:** Make sure you don't apply torque to the connector strip. Check to make sure the lamp is not rigidly mounted. Remove the protective cover paper.

Required Parts	Quantity	Position
Quartz Tube	1	1

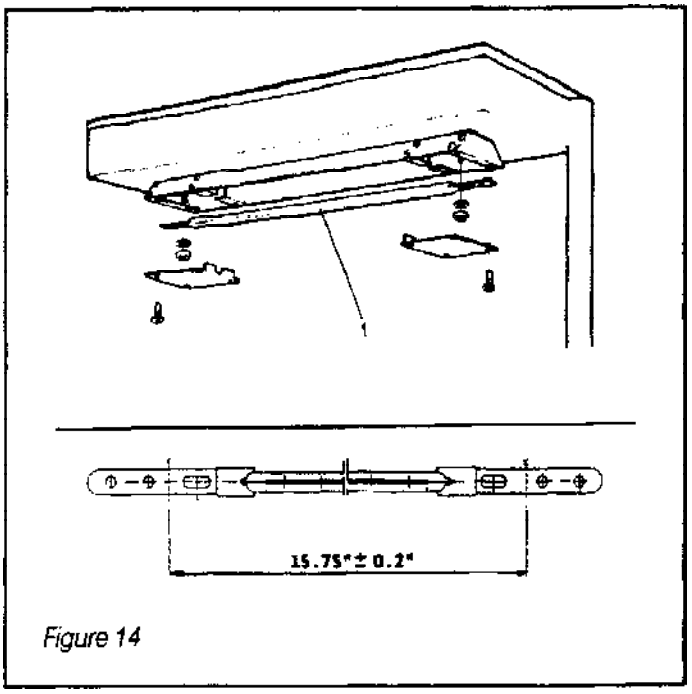


Figure 14

INSULATION GROMMETS

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the quartz tube.
3. Remove the electrical connections.
4. Remove the nuts that hold the IR fixtures in place.
5. Remove the top nut from the stud screw.
6. Disassemble the insulation grommets.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-6 above. NOTE: The insulation assembly should not be rigid when assembled.

Required Parts	Quantity	Position
Insulation Grommets	1 Set	1

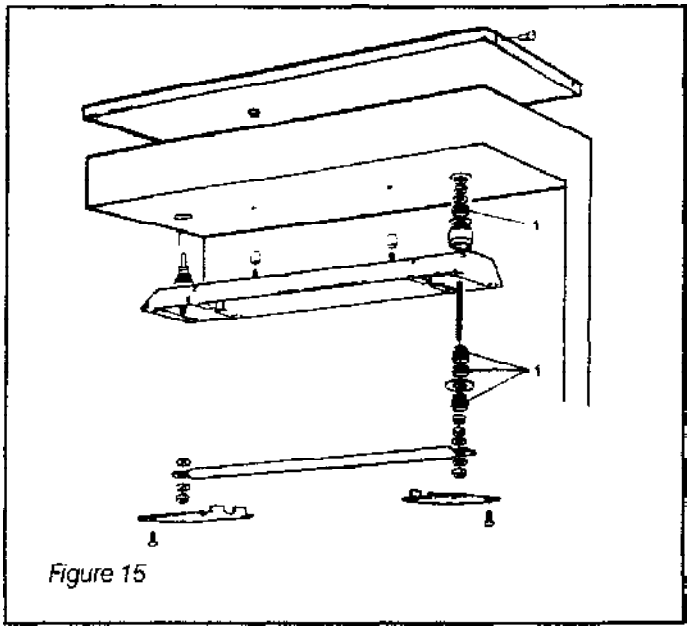


Figure 15

DOOR GASKETS

Disassembly Instructions:
1. Disconnect main voltage.
2. Remove the 4 screws or rivets by drilling out their centers.
3. Remove the glass trim strip.
4. Remove the gasket.

Assembly Instructions:
1. Assemble in reverse order according to steps 1-4 above. NOTE: Fill the pop rivets with silicone sealant.

Required Parts	Quantity	Position
Door Gasket	1	1

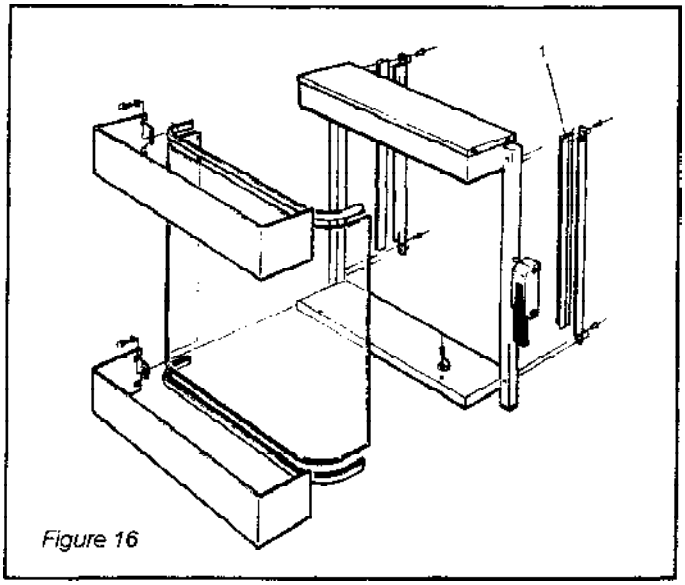


Figure 16

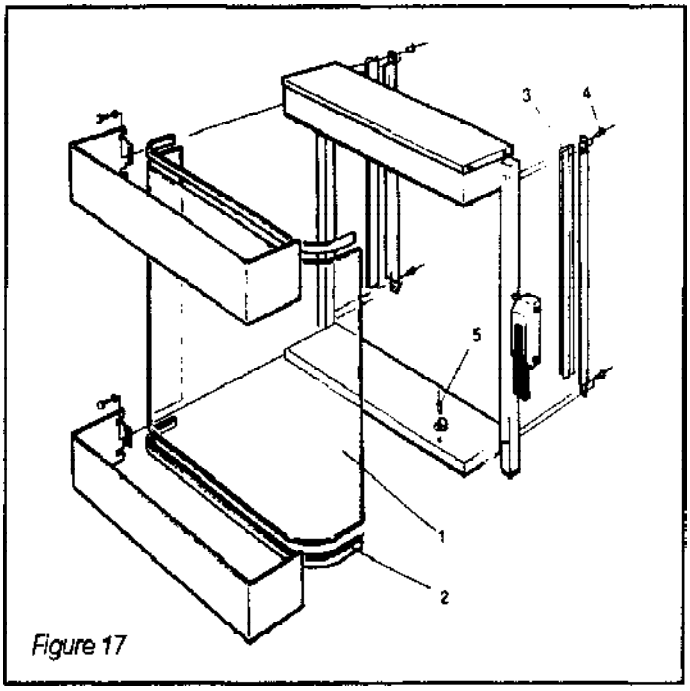


Figure 17

GLASS FRONT

Disassembly Instructions:

1. Disconnect main voltage.
2. Remove the pop rivets holding the washers, by drilling out their centers.
3. Remove the screws holding the glass strip by drilling.
4. Remove the silicone strips.

Assembly Instructions:

1. Install new silicone strips on both top and bottom.
2. Install new silicone strips on the glass strips.
3. Place the glass front with the upper and lower silicone strip in the door.
4. Push the glass front through the door so the edges are accessible.
5. Install the glass strip.
6. Adjust the glass front to center it and then pop rivet the glass strips in place.
7. Push the glass front toward the grill and pop rivet the washers in place to make the glass solidly fixed.
8. Fill the pop rivets with silicone sealant.

Required Parts	Quantity	Position
Glass Front	1	1
Glass Gasket	2	2
Door Gasket	2	3
Screws	8	4
5/32" Pop Rivets	4	5

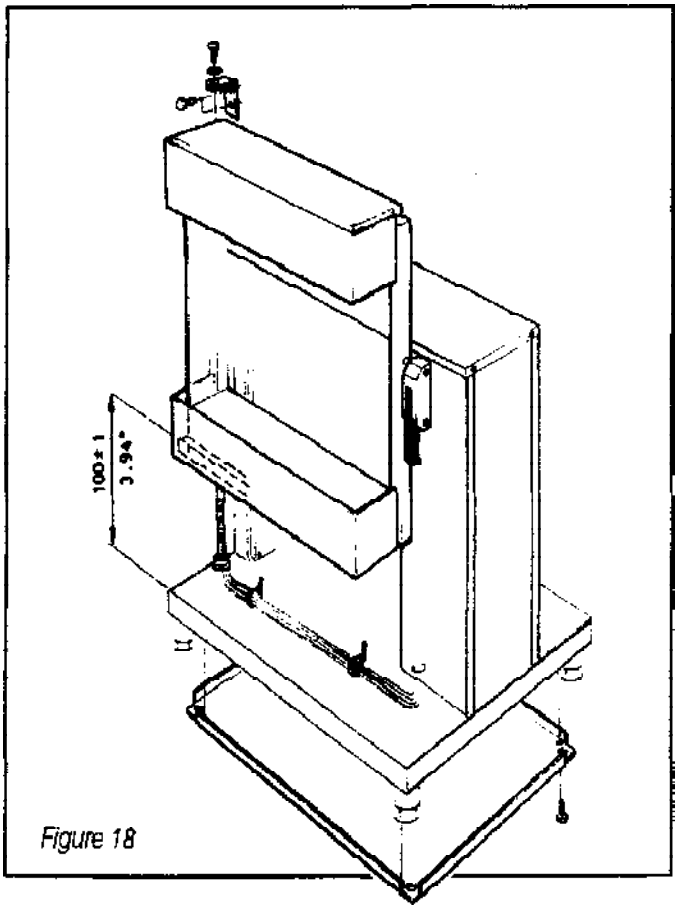


Figure 18

DOOR REMOVAL

1. Disconnect main voltage.
2. Disconnect the electric connections in the electric compartment.
3. Remove the cover plate underneath the grill.
4. Remove the bolt in the pivot.
5. Tilt the door forward and lift the door upwards.

DOOR INSTALLATION

1. Make sure the (3.94") +/- 1 mm distance is kept when you assemble.
2. Also make sure the transparent cable protection is inserted through the pivot bushing.

NOTE: Connect the earth cable.

3. Assemble in reverse order according to steps 1-5 above.

TROUBLE SHOOTING GUIDE

FAULT DESCRIPTION	POSSIBLE FAULT	ACTION
Grill is totally unresponsive	1. No current to grill. 2. Fuse F2 blown. 3. Temperature limiter device F1 tripped.	1. Check main voltage. 2. Replace fuse.. 3. Reset F1 & check operating temperature.
Time and temperature set, but the grill does not start.	1. Switch not functioning. Check for loose wires or bad switch sections.	1. Repair wiring 2. Replace switch or bad section.
The grill starts, but does not heat up.	1. Faulty wiring. 2. Faulty elements or IR lamp. 3. Faulty Contactor. 4. Faulty Controller, A1.	1. Correct wiring. 2. Replace faulty part. 3. Replace contactor. 4. Replace controller.
Grill motor does not start	1. Overload. 2. Faulty CB-1. 3. Faulty K2	1. Correct by loading product evenly. 2. Replace CB-1 3. Replace K2.
Grill motor stops & starts	1. Overload. 2. Faulty CB-1. 3. Faulty K2 4. Faulty motor M1.	1. Correct by loading product evenly. 2. Replace CB-1 3. Replace K2. 4. Replace motor M1.
Fan M2 does not work	1. Faulty cooling thermostat B1. 2 Faulty C2. 3. Faulty fan motor M2.	1. Replace cooling thermostat. 2. Replace capacitor. 3. Replace fan motor M2.
Fan M2 starts immediately when grill is hooked up	1. The cooling thermostat B1 is not adjusted correctly. 2. Faulty cooling thermostat.	1. Adjust B1. M2 should start at 140° F. 2. Replace cooling thermostat.
Grill takes too long to heat up	1. Low voltage. 2. Faulty elements or IR lamp.	1. Check power source and correct voltage problem. 2. Replace faulty element or lamp.
Grill temperature control is unresponsive.	1. RTD not properly connected. 2. Faulty RTD (see chart). 3. Faulty contactor K1 4. Faulty controller.	1. Check connection. 2. Replace RTD. 3. Replace contactor K1. 4. Replace controller A1.
Temperature control functions, but at a too low level	1. RTD, temperature sensor influenced by element radiation. 2. Faulty RTD. 3. Faulty convection motor. 4. Faulty controller.	1. Install the air box so it does not touch the probe. 2. Replace RTD (check chart). 3. Check run capacitor C-2. Overheating due to lack of circulation. 4. Replace controller

PT TEMPERATURE SENSOR / RESISTANCE TABLE

Standard SP-7
#15856 - RTD, 1000 OHM (0°C or 32°F)
(Note: For SP-7 units with Pre-programmable Controls, consult Savory factory.)

For Reference Only –
Ohm - F - Value – Center of 100 F Span

Temp °F	0	10	20	30	40	50	60	70	80	90	Ω/°F
0	921.190	942.730	964.350	985.680	1007.366	1028.814	1050.224	1071.584	1092.827	1114.221	2.14
100	1335.478	1156.693	1177.872	1199.011	1220.113	1241.178	1262.200	1283.186	1304.133	1325.042	2.11
200	1345.913	1366.744	1387.538	1408.293	1429.009	1449.687	1470.326	1490.927	1511.489	1532.013	2.07
300	1552.498	1572.945	1593.353	1613.723	1634.054	1654.347	1674.601	1694.817	1714.994	1735.133	2.03
400	1755.253	1775.295	1795.318	1815.303	1835.249	1855.157	1875.026	1894.857	1914.649	1934.403	1.99
500	1954.117	1973.794	1993.432	2013.032	2032.593	2052.116	2071.600	2091.046	2110.452	2129.821	1.95
600	2149.151	2168.443	2187.696	2206.910	2226.086	2245.224	2264.323	2283.383	2302.405	2321.389	1.91
700	2340.334	2359.240	2378.108	2396.938	2415.729	2434.481	2453.195	2471.871	2490.508	2509.106	1.88
800	2527.666	2546.187	2564.670	2583.115	2601.521	2619.888	2638.217	2656.507	2674.758	2692.973	1.84
900	2711.147	2729.284	2747.382	2765.441	2783.460	2801.444	2819.388	2837.293	2855.160	2872.988	1.80
1000	2890.778	–	–	–	–	–	–	–	–	–	–

STANDARD SP-7
#19390 ELECTRONIC TIME / TEMPERATURE CONTROL
CONTROL ERROR CODES

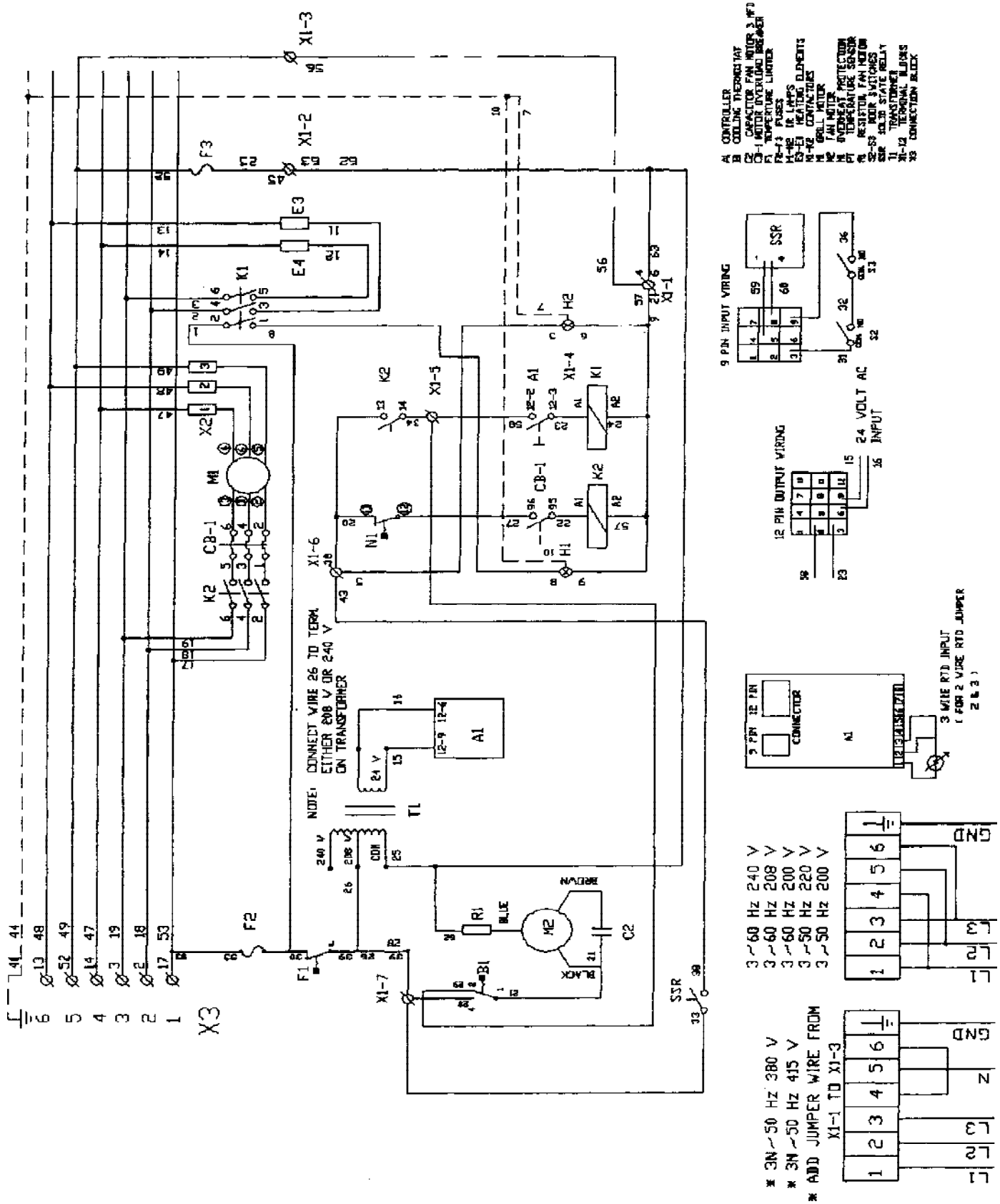
Error codes are provided to aid in determining the nature of common oven failures and to inform the user of possible safety or performance problems. Each error has an associated code number that is displayed in the time digits when the error occurs. The control also sounds a series of attention tones. The control must be powered down to clear the failure mode.

If a service call is received, sighting any of the following "Error Codes," please instruct the customer to turn the oven off and wait for service.

Prior to replacing any of these parts, all the wiring and voltages to the controller should be verified.

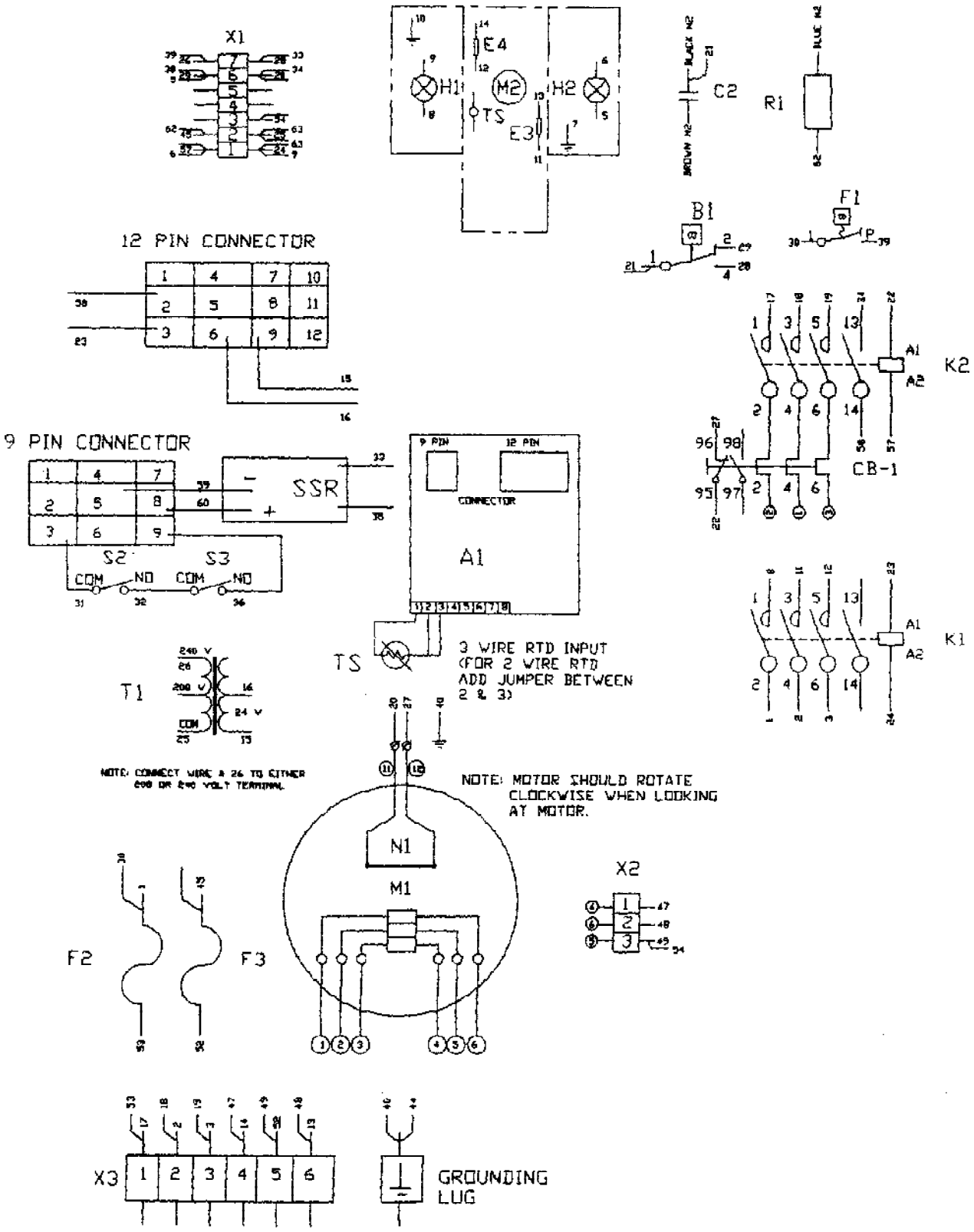
ERROR CODE #	ACTION TO BE TAKEN
F1	Replace the T/T Controller (#19390)
F2	Oven temperature has exceeded 551°. Check actual oven temperature and resistance of RTD Sensor and replace if necessary.
F3	The RTD Sensor (#15856) may have an open circuit. Check the resistance and replace if necessary. If F3 still appears, replace controller.
F4	The RTD Sensor (#15856) may have a short circuit. Check the resistance and replace if necessary.
F5	Replace the T/T Controller (#19390).
F6	Replace the T/T Controller (#19390).

WIRING DIAGRAM
(For SP-7 Models with Pre-Programmable Control)

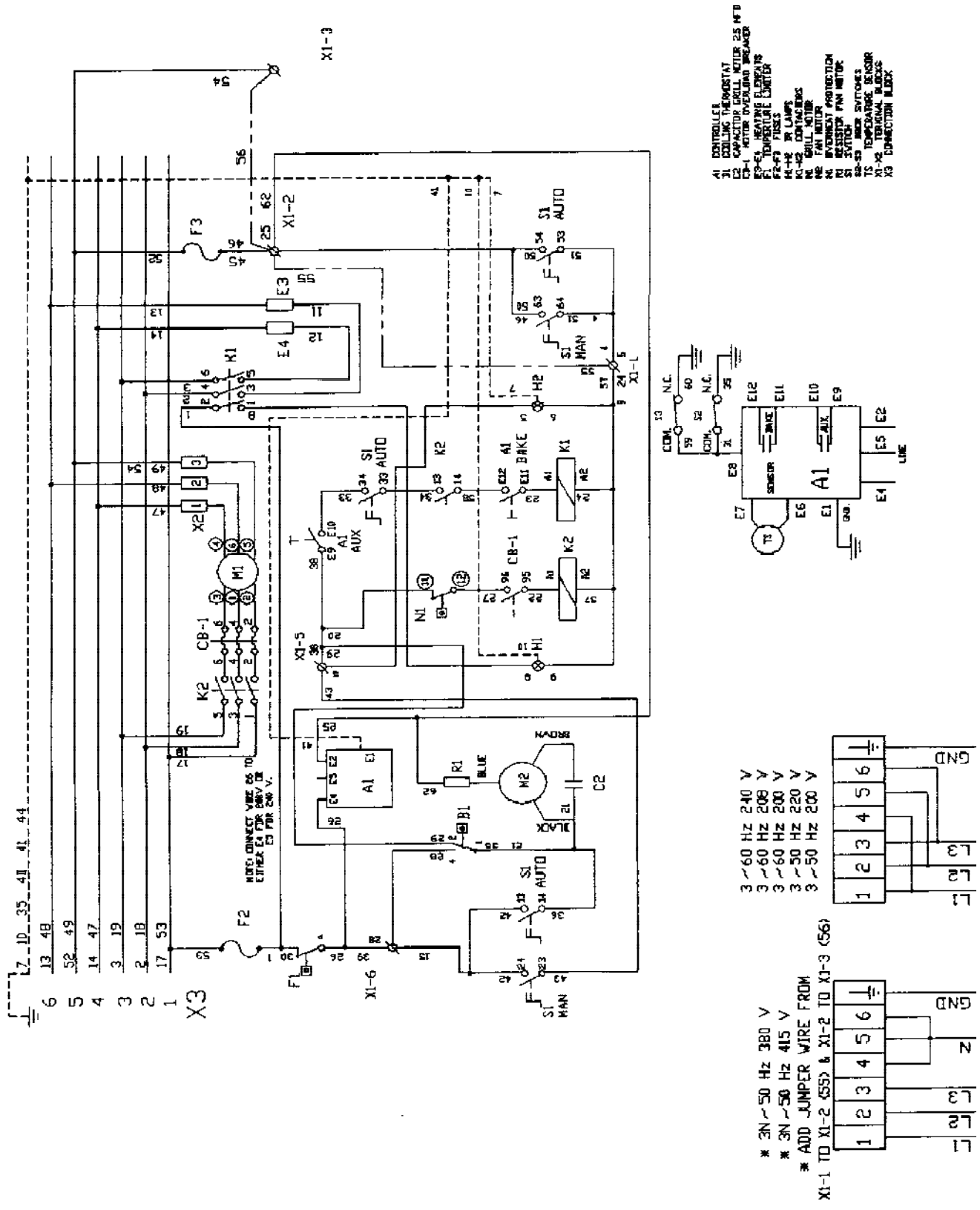


WIRING DIAGRAM DETAIL

(The following detail is taken from the wiring diagram located on Page **14***)*

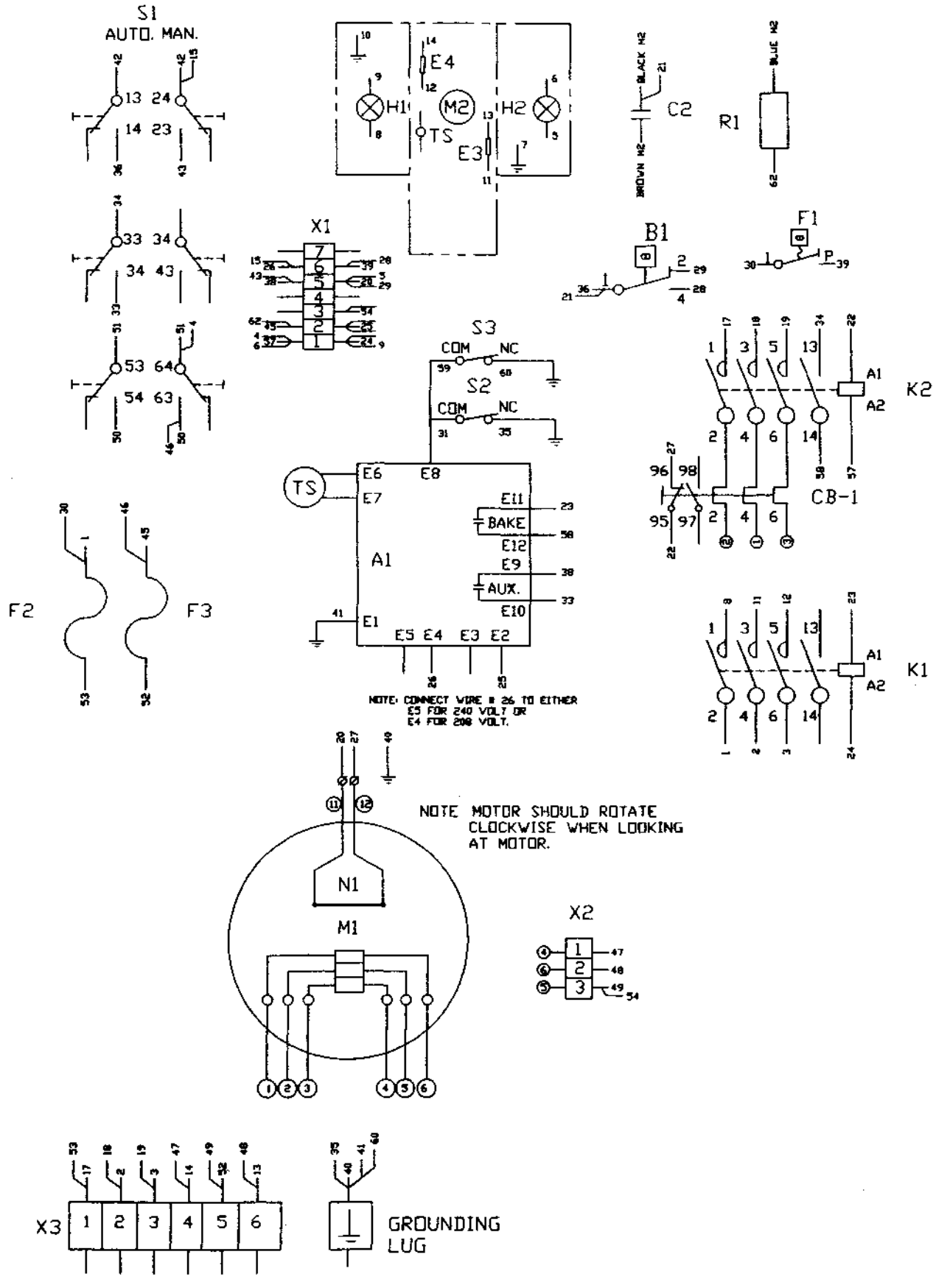


WIRING DIAGRAM
(For SP-7 Models with Standard Control)



DETAIL OF WIRING DIAGRAM

*(The following detail is taken from the wiring diagram located on Page **16**)*



COMPONENT LOCATION

COMPONENT	MARKING	SAVORY PART NUMBER		
		STANDARD AND PRE-PROGRAMMABLE	STANDARD ONLY	PRE-PROGRAMMABLE ONLY
RTD, Temp. Sensor	PT		15856 1000 OHM	19428 100 OHM
Fan Motor	M2	19377		
Element, 208V	E3-34	19358		
Element, 240V	E3-34	19449		
IR Lamp	H1-H2	15275		
Cooling Thermostat	B1	15252		
Overheat Protection	F1	19374		
Switch	S1		15272	
Contactor	K1	19413		
Terminal Block, 5 Pole	X1	15257		
Controller, Time Temp.	A1		19390	19384
Relay	K2	15258		
Transformer 24VAC / 20VA	T1			15881
Condensor (Fan) 2.5 Mf	C2	19367		
Grill Motor	M1	19357		
Fuse, 15 AMP / 250V	F2-F3	15259		
Connection Block, 7 Pole	X3	15256		
Terminal Block, 3 Pole	X2	15281		
Solid State Relay	SSR			15857
Resistor	R1	19409		
Motor Overload	CB1	19391		
Door Switch	S2	19378		

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